



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,496	02/20/2002	Benedict J. Costello	M-12070 US	1499

36257 7590 08/18/2003

PARSONS HSUE & DE RUNTZ LLP
655 MONTGOMERY STREET
SUITE 1800
SAN FRANCISCO, CA 94111

EXAMINER

FARAHANI, DANA

ART UNIT	PAPER NUMBER
----------	--------------

2814

DATE MAILED: 08/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/081,496

Applicant(s)

COSTELLO ET AL.

Examiner

Dana Farahani

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 27-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27-42 is/are allowed.
- 6) ☒ Claim(s) 1-5 and 8-20 is/are rejected.
- 7) ☒ Claim(s) 6 and 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-10 and 27-42 in Paper No. 7 is acknowledged.

Claim Objections

2. Claims 17, 19, and 20 objected to because of the following informalities: claim 17 depends on claim 1, claim 19 depends on claim 13 and, claim 20 depends on claim 13. The Office assumes that those claims meant to depend on claims 16, 17, and 17, respectively, since there is no mention of an insulating layer, or a silicon layer, in either claims 1 or 13. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 5, 8-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Yasuda et al., hereinafter Yasuda (U.S. Patent 5,753,911).

Regarding claims 1, 2, 8, and 13, Yasuda discloses in figure 10, an electrostatic actuator comprising a stator comprising a first plurality of fingers 703; a rotor (706 and 707) formed in the layer comprising a second plurality of fingers, wherein one or more of

Application/Control Number: 10/081,496
Art Unit: 2814

the fingers of the second plurality is between the fingers of the first plurality, and one or more fingers of the stator and rotor are positioned above a conducting plane 707 having the same potential as the rotor, and one or more fingers of the rotor has a height less than or equal to one or more fingers of the stator, as can be seen in the figure, such that a vertical force is exerted upon the rotor, the height measured from the bottom of the finger to the top of the finger (see also column 6, lines 4-50, for an explanation of the figure).

Regarding claim 5, the rotor 106 forms part of a micro-optical component shown in figure 7.

Regarding claims 9, 10, and 12 a central portion of the rotor is rotated about an axis (see figure 7, where 107 shown is rotated along the vertical axis).

Regarding claim 11, see figure 4, wherein spring 615 is connected to the central portion of the rotor.

Regarding claim 14, a positive and a negative force is created at the first side (up), and a negative force is created at the second side (down).

Regarding claim 15, the actuator pivots about an axis, x, between the first and the second side.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2814

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda as applied to claim 1 above, and further in view of Moresco et al., hereinafter Moresco (U.S. Patent 6,539,137).

Yasuda discloses the limitations in the claims, as discussed above, except for a conductive substrate (the single layer) or an insulating material.

Moresco discloses at column 5, first line, a semiconductor device, wherein an insulating substrate, or interchangeably, a conductive substrate is used. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an insulating or a conductive single layer (substrate) in Yasuda's structure, since selecting an appropriate material in, according its suitability and availability in the device fabrication environment is considered to be within the level of ordinary skill in the art. *In re Leshin*, 125 USPQ.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda as applied to claim 15 above, and further in view of Chang et al., hereinafter Chang (U.S. Patent 6,236,096).

Yasuda discloses the limitations in the claims, as discussed above, except for a silicon rotor and stator.

Chang discloses at column 2, lines 1-3, that silicon electrodes are used in a sensor. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use silicon in the actuator of Yasuda's structure, since selecting an appropriate material in, according its suitability and availability in the device

Art Unit: 2814

fabrication environment is considered to be within the level of ordinary skill in the art. *In re Leshin*, 125 USPQ.

8. Claims 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda in view of Chang as applied to claim 16 above, and further in view of Riccobene et al., hereinafter Riccobene (U.S. Patent 6,538,284).

Yasuda in view of Chang renders obvious the claimed invention, as discussed above, except for an insulating layer.

Riccobene discloses in figure 1, an SOI structure wherein insulator 20 is sandwiched between semiconductor layer 16 and the top semiconductor layer. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an SOI structure in the actuator of Yasuda's structure, since it is well known in the art that SOI structures present many advantages compare to semiconductor substrate structures, such as saving the device integrity by appropriate isolation between the device components and the other components of adjacent devices/substrates.

Product-by-Process Limitations

A comparison of the recited process with the prior art process does NOT serve to resolve the issue concerning patentability of the product. *In re Fessman*, 489 F2d 742, 180 USPQ 324 (CCPA 1974). Whether a product is patentable depends on whether it is known in the art or it is obvious, and is not governed by whether the process by which is made is patentable. *In re Klug*, 333 F2d 905, 142 USPQ 161

Art Unit: 2814

(CCPA 1964). In an ex parte case, product by process claims are not constructed as being limited to the product formed by the specific process recited. *In re Hirao et al.*, 535 F2d 67, 190 USPQ 15, see footnote 3 (CCPA 1976). Therefore, in claim 18 "...wherein the fingers of the stator and rotor are formed within the silicon layer by etching..." is given no patentable weight.

Allowable Subject Matter

9. Claims 27-42 are allowed.

10. Claims 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The following is a statement of reasons for the indication of allowable subject matter:

The reason for the indication of allowability of claims 6 and 7 is the inclusion of the limitation of the filter elements and an input signal.

The reason for indication of allowability of claims 27-42 is the inclusion therein of the limitation that of the insulating material of the rotor and stator is coplanar when no voltage is applied, and the rotor is formed in the second conductive/insulating layer (claim 27).

Art Unit: 2814


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (703)305-1914. The examiner can normally be reached on M-F 9:00AM - 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M Fahmy can be reached on (703)308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9318 for regular communications and (703)872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

D. Farahani
August 3, 2003



LONG PHAM
PRIMARY EXAMINER